



The University of Chicago
Departments of Computer Science,
Mathematics, and Statistics

Scientific and Statistical Computing Seminar

ANNA GILBERT

Department of Mathematics
University of Michigan

Sparse Approximation and Signal Recovery: 3 Applications

FRIDAY, January 20, 2012 at 3:30 PM

133 Eckhart Hall, 5734 S. University Avenue.

ABSTRACT

A large number of signal processing tasks can be cast as problems in which, given a dataset or signal, we attempt to balance the size of a (linear) representation of the data and the fidelity of that representation. In some versions of the problem, we are given the dictionary from which we build a representation of the data and for some applications, we have the freedom to design the dictionary. I will discuss three applications—parallel coil magnetic resonance imaging (MRI) and biological group testing (high throughput screening and micro-array screening)—that incorporate these mathematical problems. The theoretical portion of this talk will address the basic algorithmic problems and their solutions and the experimental part will show how well these methods work in practice.

Organizers:

Lek-Heng Lim, Department of Statistics, lekheng@galton.uchicago.edu,
Ridgway Scott, Departments of Computer Science and Mathematics, ridg@cs.uchicago.edu,
Jonathan Weare, Department of Mathematics. weare@math.uchicago.edu.
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